

WHAT IS CLAIMED IS:

1. A system for wavelet analysis of one or more time domain reflectometry (TDR) signals to determine one or more characteristics of one or more anomalies in a wire, the system comprising:

5 a library of one or more reference wavelet analysis results that each correspond to one or more known anomalies having one or more known characteristics; and

an analysis module operable to:

10 receive a TDR signal that has reflected back up a wire from an anomaly in the wire;

calculate a wavelet analysis result from a wavelet analysis of the TDR signal;

access the library;

15 compare the wavelet analysis result with one or more reference wavelet analysis results;

20 if the wavelet analysis result corresponds to one or more particular reference wavelet analysis results, indicate that the anomaly in the wire has one or more particular known characteristics of one or more particular known anomalies corresponding to the one or more particular reference wavelet analysis results; and

if the wavelet analysis result of the TDR signal does not correspond to one or more reference wavelet analysis results, indicate that the anomaly in the wire lacks one or more known characteristics of one or more known anomalies corresponding to one or more reference wavelet analysis results in the library.

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2. The system of Claim 1, wherein the wavelet analysis result comprises a wavelet power spectrum of the TDR signal and the reference wavelet analysis results each comprise one or more reference wavelet power spectra.

3. The system of Claim 2, wherein a wavelet transform is used to calculate the wavelet power spectrum of the TDR signal.

4. The system of Claim 1, wherein a location of the anomaly is
5 determined according to the TDR signal.

5. The system of Claim 1, wherein an integrated circuit (IC) package comprises the wire.

6. A method for wavelet analysis of one or more time domain reflectometry (TDR) signals to determine one or more characteristics of one or more anomalies in a wire, the method comprising:

5 receiving a TDR signal that has reflected back up a wire from an anomaly in the wire;

calculating a wavelet analysis result from a wavelet analysis of the TDR signal;

10 accessing a library of one or more reference wavelet analysis results that each correspond to one or more known anomalies having one or more known characteristics;

comparing the wavelet analysis result with one or more reference wavelet analysis results;

15 if the wavelet analysis result corresponds to one or more particular reference wavelet analysis results, indicating that the anomaly in the wire has one or more particular known characteristics of one or more particular known anomalies corresponding to the one or more particular reference wavelet analysis results; and

20 if the wavelet analysis result of the TDR signal does not correspond to one or more reference wavelet analysis results, indicating that the anomaly in the wire lacks one or more known characteristics of one or more known anomalies corresponding to one or more reference wavelet analysis results in the library.

7. The method of Claim 6, wherein the wavelet analysis result comprises a wavelet power spectrum of the TDR signal and the reference wavelet analysis results each comprise one or more reference wavelet power spectra.

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8. The method of Claim 7, wherein a wavelet transform is used to calculate the wavelet power spectrum of the TDR signal.

9. The method of Claim 6, wherein a location of the anomaly is determined according to the TDR signal.

10. The method of Claim 6, wherein an integrated circuit (IC) package
5 comprises the wire.

11. Software for wavelet analysis of one or more time domain reflectometry (TDR) signals to determine one or more characteristics of one or more anomalies in a wire, the software embodied in a computer-readable medium and when executed operable to:

5 receive a TDR signal that has reflected back up a wire from an anomaly in the wire;

calculate a wavelet analysis result from a wavelet analysis of the TDR signal;

access a library of one or more reference wavelet analysis results that each correspond to one or more known anomalies having one or more known characteristics;

10 compare the wavelet analysis result with one or more reference wavelet analysis results;

if the wavelet analysis result corresponds to one or more particular reference wavelet analysis results, indicate that the anomaly in the wire has one or more particular known characteristics of one or more particular known anomalies corresponding to the one or more particular reference wavelet analysis results; and

15 if the wavelet analysis result of the TDR signal does not correspond to one or more reference wavelet analysis results, indicate that the anomaly in the wire lacks one or more known characteristics of one or more known anomalies corresponding to one or more reference wavelet analysis results in the library.

12. The software of Claim 11, wherein the wavelet analysis result comprises a wavelet power spectrum of the TDR signal and the reference wavelet analysis results each comprise one or more reference wavelet power spectra.

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13. The software of Claim 11, wherein a location of the anomaly is determined according to the TDR signal.

14. The software of Claim 11, wherein an integrated circuit (IC) package comprises the wire.

15. A system for wavelet analysis of one or more time domain reflectometry (TDR) signals to determine one or more characteristics of one or more anomalies in a wire, the system comprising:

5 means for receiving a TDR signal that has reflected back up a wire from an anomaly in the wire;

means for calculating a wavelet analysis result from a wavelet analysis of the TDR signal;

10 means for accessing a library of one or more reference wavelet analysis results that each correspond to one or more known anomalies having one or more known characteristics;

means for comparing the wavelet analysis result with one or more reference wavelet analysis results;

15 means for, if the wavelet analysis result corresponds to one or more particular reference wavelet analysis results, indicating that the anomaly in the wire has one or more particular known characteristics of one or more particular known anomalies corresponding to the one or more particular reference wavelet analysis results; and

20 means for, if the wavelet analysis result does not correspond to one or more reference wavelet analysis results, indicating that the anomaly in the wire lacks one or more known characteristics of one or more known anomalies corresponding to one or more reference wavelet analysis results in the library.

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16. A system for wavelet analysis of one or more time domain reflectometry (TDR) signals to determine one or more characteristics of one or more anomalies in a wire, the system comprising:

5 a library of one or more reference wavelet power spectra that each correspond to one or more known anomalies having one or more known characteristics; and
an analysis module operable to:

receive a TDR signal that has reflected back up a wire from an anomaly in the wire;

10 calculate a wavelet power spectrum from a wavelet analysis of the TDR signal using a Morlet basis function;

access the library;

compare the wavelet power spectrum with one or more reference wavelet power spectra;

15 if the wavelet power spectrum of the TDR signal corresponds to one or more particular reference wavelet power spectra, indicate that the anomaly in the wire has one or more particular known characteristics of one or more particular known anomalies corresponding to the one or more particular reference wavelet power spectra; and

20 if the wavelet power spectrum of the TDR signal does not correspond to one or more reference wavelet power spectra, indicate that the anomaly in the wire lacks one or more known characteristics of one or more known anomalies corresponding to one or more reference wavelet power spectra in the library.